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FIBROMYOMA OF MESENTERY: 30 LB.: REMOVAL: RECOVERY: WITH NOTES ON THE SURGERY OF RETROPERITONEAL TUMOURS.

Contribution to a Discussion in the Section of Surgery at the Annual Meeting of the British Medical Association, Oxford, July, 1904.

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BÉGOUIN, of Bordeaux, in his fine monograph on the treatment of solid and cystic tumours of the mesentery[1] showed that, according to statistics, the operative mortality was very high. He adds:

> We feel certain that the death-rate is in reality higher. Surgeons record their successes rather than their failures, and many cases followed by death have not been published. We ourselves know of two which would make these statistics much higher.[2]

I entirely agree, on the ground of similar experience, with M. Bégouin's opinion. Thus I know of more than one case of death after removal of a retroperitoneal lipoma, which would further increase the gravity of his statistics. Yet they remain unrecorded. One more instance has been related, the author being myself. I began my notes[3] by stating: "I consider it my duty to report this case of a large lipoma, not omental, but in every sense entirely retroperitoneal. Its removal proved extremely difficult, and the result, I regret to say, was death."

I may now be permitted to report another case where I removed a large solid retroperitoneal tumour, and the result, I am glad to say, was recovery. "Any one who has performed many laparotomies," says Lockwood,[4] "must have met with retroperitoneal tumours." We want to hear more about them, and I therefore make public my own operative experience, with due consideration of the opinions and practice of British and foreign authorities:

P. C., aged 34 years, was admitted into my wards in the Samaritan Free Hospital on March 26th, 1904, for an abdominal tumour. Although married for six years she had never been pregnant. There was no history of any severe illness since an attack of typhoid fever when she was 12 years old. She had recently consulted Dr. Aurelius Maybury, of Portsmouth, for swelling of the abdomen, which she had noticed for about five months, and Dr. Maybury detected a large tumour separate from the uterus, which was displaced backwards and to the left.

The patient on admission appeared fairly healthy, and somewhat spare. The abdomen was extremely distended. Girth at umbilical level, 43½ in.; ensiform cartilage to umbilicus, 9½ in.; umbilicus to symphysis pubis, 12¾ in.; right anterior superior spine of ilium to umbilicus, 12¼ in.; left anterior superior spine of ilium to umbilicus, 12½ in. There was marked bulging anteriorly, with but little, relatively, in the flanks. The skin was tense, and the superficial veins distinctly dilated. On percussion there was clear resonance in the epigastrium, but none in either flank or over the tumour. A very distinct feeling of fluctuation was observed. The cervix uteri lay far back and to the left, displaced by the base of the tumour, which descended into the brim of the pelvis. The catamenia were regular, with moderate show of blood. Altogether the tumour simulated cystic disease of the right ovary. Operative interference was urgent; the bulk of the tumour caused much distress, and the patient could not sleep except in a sitting posture.

I removed the tumour on March 31st; Mr. Butler-Smythe assisted, and the anaesthetic was administered by Mr. Arthur Morley. On dividing the parietal peritoneum, easily distinguished by the urachus, another membrane was exposed. The trocar was introduced, but no fluid escaped. I broke up some of the interior of the tumour near the incision. A quantity of yellow serum came away, without any perceptible reduction in size of the entire mass. It then became evident that the second membrane was also serous, the true wall of the tumour lying behind it. The abdominal wound was extended upwards for several inches above the umbilicus. Then I found that the tumour was entirely retroperitoneal. The lower part of the ascending colon lay on the outer and upper part of the capsule, the small intestines were closely related to its limits on the left. The omentum and the transverse and descending mesocolon were not opened up. Inferiorly, the right ovary, of normal size and appearance, just touched the capsule; the Fallopian tube and mesosalpinx were distinct, lying against the lowest limits of the tumour; the uterus was small and healthy, and the left appendages were quite unconnected with the capsule. There was no pelvic kidney, nor any other displaced organ in the pelvis or lumbar region.

I enucleated the tumour above, in front, and behind with ease. On raising it out of the wound, the lower connexions, bands of connective tissue as elsewhere, and very vascular, were clamped and divided, and the bulky tumour came away. I could distinguish and push back the right ureter, running normally in the connective tissue of the pelvis. Large vessels derived from the lumbar, mesenteric, ovarian, and round ligament arteries required ligature. There was no true pedicle of any kind, and no inflammatory changes in the retroperitoneal connective tissue, in which an extensive chasm was left after enucleation. The peritoneal cavity was quite healthy, no adhesions could be detected; saline solution was freely poured into it by my assistant whilst I was finishing the enucleation.

I packed the capsule with absorbent gauze, as it was impossible otherwise to stop the general oozing. I ligatured and removed the right tube and ovary in order to control thoroughly the vessels derived from the utero-ovarian anastomosis which had supplied the base of the tumour. After trimming off the cut edge of the capsule, it was fixed by suture to the lower angle of the abdominal wound; I made sure that it could so be fixed without any undue stretching, and I observed that there was no kinking of large or small intestine after the fixation of the capsule. A space was left below the sutures where the end of the gauze used for packing came out. Above, the capsule was carefully cut off by sutures from all connexion with the peritoneal cavity. Sutures were then applied to the abdominal wound, several pints of saline solution were poured into the peritoneal cavity, and the wound was closed, over a pint of the solution being left inside the abdomen.

Progress of the Case after Operation.—There was considerable shock, and large doses of strychnine and digitalis were given for several days. The question of shock will be discussed further on. The gauze packing was removed at the end of twenty-four hours, as the oozing appeared to have ceased, and the packing interfered with the passage of flatus. A rubber drainage tube was inserted into the capsule. On the morning of the second day an enema was given, and flatus with motion came away freely; there was no further difficulty about the bowels. The edge of the capsule was kept dry with tannic acid, boracic acid, and iodoform in powder. Drainage was discontinued at the end of a fortnight. The

Retroperitoneal Cysts developing from Wolffian Body. Donoghue, "Journ. Amer. Med. Assoc." Dec 22 '06 and Abstract "Amer. Journ. Obst." Feb. 1907, p. 259

Pelvic Kidney. For references, see MS notes to case 7, Tuberc.. Fibroma of Broad Lig.t in this volume

Dermoid of Mesentery coincident with 1 (Alexandre) & 2 (Schmid) ovarian dermoids. See Henzel "Kystes dermoïdes du mésentère. Arch. prov. de Chir." Vol 20, 1913.

patient left the hospital on May 4th in very good health: there was a small sinus in the lower angle of the wound, which was closing by granulation. On June 27th, over three months after the operation, she reported herself as quite restored to health and strength. She was able to walk for a considerable distance without fatigue.

Description of the Tumour.—It was oval in shape, much flattened from before backwards, and fairly regular on the surface except at one point posteriorly and internally where there was an outgrowth of the size and shape of a kidney. It weighed 30 lb. an hour after removal; much serum had already escaped, when I broke up some of the interior of the mass at the beginning of the operation, and about two pints more oozed out into the basin before I weighed it. The interior showed trabeculae of white cords and bands running in all directions through a soft, semi-transparent material. It was carefully examined by my colleague, Dr. Cuthbert Lockyer, who kindly wrote out for me the following report: "The large tumour is of a flattened ovoid shape, with a perfectly smooth surface, excepting over an area 7 × 6 where it is very ragged. In circumference it measures 46 in. Its longest diameter is 18 in., its shortest 16 in. The growth has the consistency and appearance of a soft, semicystic fibroid. On section the cut surface presents large areas of glistening, jelly-like myxomatous material intersected by strands of firmer fibrous tissue. The entire surface oozes a limpid, pale, straw-coloured fluid, some of which on being collected in test tubes became spontaneously coagulable, forming a pale, milky clot. There are a few vessels of moderate size lying at the periphery of the growth, but the tumour as a whole is not very vascular. Several large vessels can be seen attached to the ragged area on the outer surface. There is no distinct differentiation of tissue into capsule and medulla, the myxomatous change being universal. Under the microscope the tumour is found to be a fibromyoma which has undergone diffuse myxomatous degeneration. By Van Gieson's stain (picro-säurefuchsin) the differentiation between muscle bundles and fibrous tissue is rendered very apparent, the muscle taking on a bright orange colour, whilst the fibrous tissue is magenta coloured. The periphery of the growth shows a thin strand of fibrous tissue succeeded by coarse muscular fasciculi arranged in longitudinal and transverse bundles and alternating with layers of delicate myxomatous fibrous tissue to form an indefinite capsule; this capsule formation was not at all apparent to the naked eye. The deeper parts of the growth consist of large bundles of involuntary muscle around which the myxomatous fibrous stroma has receded in the process of dehydration. The vessels are large and have thick walls, the increase in thickness affecting principally the middle and outer coats. The proportion of muscle to fibrous tissue is about equal."

Thus the tumour was a fibromyoma undergoing myxomatous degeneration. It is at present on view in the Pathological Museum, No. 658, with some microscopic sections, in the series prepared by Dr. Lockyer. (The specimen was exhibited in the Surgical Section during the reading of this paper.)

The Surgical Anatomy of the Capsule is a subject of great importance in respect to a tumour of this class and to the operative measures necessary for its removal. In this case there could be no doubt that the capsule was composed of peritoneum pushed forward by the growth of the tumour. It was equally evident that the pelvic peritoneum was hardly, if at all, involved in this displacement, as has been already explained. The relations of the ascending colon and small intestines to the tumour showed conclusively that its capsule consisted of the upper layer of the mesentery, which is continuous with the lower layer of the transverse mesocolon, and also with the peritoneum which invests to varying degrees in different subjects the ascending colon. Hence the small intestines lay mostly on the left border of the capsule, closely applied as though adherent, whilst the ascending colon ran along the opposite border. Had the tumour developed

Exophthalmos developing 3 months after removal of large mesenteric cyst ♀ 39, 4-para. Menstruation ceased for 5 mos after op, then became regular. ("The Reciprocal Relations between affections of the Uterus & its Appendages & the Rest of the Body" T. Wilson, Lancet II '06. p.1425 behind the ascending mesocolon, that portion of the large intestine would have run across the middle of the capsule or have been displaced considerably towards the inner or left side of the tumour. The transverse colon was not involved in the capsule, so that the tumour had not encroached on the upper folds of the peritoneum any more than it had invaded below the serous lining of the pelvic cavity. In short, the capsule was formed almost entirely out of the upper or right layer of the mesentery, behind which the tumour had originated.

This is the most favourable type of displacement for the surgeon who attempts the removal of any mesenteric tumour, solid or cystic, and fully accounts for the relative facility and safety with which I removed a bulky mass with abundant and vascular though not dense connexions. When both layers are more or less opened up the dangers of operation are great indeed. Whole coils of small intestine run on the surface of the tumour, to which they may be yet more intimately bound by dense inflammatory adhesions. Their separation may involve irreparable direct damage to their tissues, whilst their nutrient arteries and the adjacent lymph vessels, important agents in the nutrition of the whole system, are certain to be divided. Amongst the most formidable conditions for operation is the close association of a considerable length of intestine, perhaps several coils, with the capsule of a relatively small tumour. In the case of mesenteric cysts this complication is not rare (F. S. Eve,[5] Baumann[6]), and may give rise to obstruction; when the tumour is solid (Roux,[7] lipoma; Julliard,[8] angioma; Murphy, fibroma) extensive resection of intestine may be necessary. This question of resection, needed in operations for the removal of many types of mesenteric tumour, will be considered presently.

Selby
"Mesenteric
Cyst causing
Intestinal
Obstruction"
B.M.J. Oct 13
p 453) 1906
& Ib. Vol I
1898. p 1818

There is much confusion about the term "mesenteric" in association with tumours, for many writers—especially in France and Germany—do not limit the term to the mesentery of the small intestine. Thus, Julliard in his analytic review of *tumeurs solides du mésentère* writes: "The seat of the tumour also varies. In 62 cases where it was clearly specified, the tumour lay in the mesentery of the small intestine in 47, or 75.8 per cent.; in the ascending mesocolon in 10, or 16.1 per cent.; in the transverse mesocolon in 3, or 4.8 per cent.; and in the descending or sigmoid mesocolon in 2, or 3.2 per cent. only." It is best to confine ourselves to the consideration of such tumours as distinctly involve one or both layers of the mesentery properly so-called. But the precise peritoneal relations of a retroperitoneal tumour are of such importance that some allied types must be mentioned, the more so when we find how they are mixed up with true mesenteric tumours in statistical monographs, and how hard it is for the operator to determine the relation of the peritoneum to the new growth. Tumours of the great omentum must be excluded; cases by Meredith and Lennander have been erroneously included in Bégouin's tables, although both those writers distinctly state that the intestines lay behind the tumour. The surgery of such cases is not always simple. Tumours of the lesser omentum are usually pancreatic or hydatid, but Ricard[9] operated on a big fibroma which extended downwards into Douglas's pouch, pushing the uterus forwards; it was diagnosed as a uterine fibroid. There were none of the painful and dyspeptic symptoms usually associated with tumours of the

AT HOME
9-10 A.M.
2-3 P.M.
TELEPHONE Nº 100 WOKING.

HILL VIEW,
WOKING.

October 12 1906.

Dear Sir

You will find my case recorded under the name of "Colley" one of the chief ways of misspelling my name. The boy had obstruction and when I first examined him by the rectum I mistook the cyst for an intussusception & tried to reduce it by water pressure. After the one and only trial I examined the rectum & found that I lost it. The intussusception had disappeared. However I was sent for after a few hours and found the symptoms unrelieved. I examined again by the bowel & found my "intussusception" there again. But this time I was sure the swelling was outside the wall of the rectum & not inside. I opened the abdomen at once and the cyst presented in the wound. I saw you at the Hospital dinner the other day & I have had the pleasure of lunching with you at 82 Harley St when I was Mr Butlin's House Surgeon.

of
up with
abdomen)

Yours faithfully

lesser omentum. Ricard found that it was entirely encapsuled in the posterior layer of that fold, which, being greatly stretched, bulged downwards into the pelvis, yet was quite independent of the pelvic peritoneum or viscera. It is important to bear in mind, should another tumour of this kind be encountered on the operating table, that the strongly adherent gall bladder had to be resected. The tumour weighed over 17 lb. The patient recovered. Growths which bear the ascending or descending colon on their capsule are usually renal, ovarian tumours occasionally push their way behind the peritoneum and large intestine, whilst some fibromas and allied solid growths have been found in the same position. Tumours of the sigmoid mesocolon are rare, if we exclude ovarian and broad-ligament growths which not infrequently burrow in that fold. Roux removed a lipoma over 7 lb. in weight from the sigmoid mesocolon, and Herbert Williamson's[10] fibromyoma connected with the sacral plexus was apparently encapsuled in the same manner.

Lastly, broad-ligament tumours must be borne in mind; lipoma has been noted,[11] but the great majority are derived from the uterus, ovary, or vestigial relics in the broad ligament itself. The relation between fibroma and fibromyoma of the broad ligament, distinct from the uterus, to retroperitoneal tumours above the pelvis has been discussed by myself elsewhere. Ströheker[12] has written a fine monograph in which over 200 cases are tabulated; it deserves study in association with the present subject, for the precise nature of a retroperitoneal tumour, to which class new growths of the broad ligament belong, is not always easily decided by the operator, so that he will do well to bear them in mind.* One point of some interest to the surgeon is discussed by Ströheker. The original blood supply of a retroperitoneal tumour he terms its "primary vascularization"; but when the growth extends far beyond its native corner in the abdomen it is largely nourished by "secondary vascularization," receiving vessels from the immediate vicinity of every region which it invades. Hence a big artery running into a big retroperitoneal tumour is no sure guide to the seat of origin of the new growth.

Zacharias'
(see ink-note
end of tables)
1 of the numerous
growths lay in
broad lig t — but
uterus & ovaries
were free

For further consideration of the peritoneal relations of retroperitoneal tumours, I may refer you to the late Mr. W. Anderson's Surgery of the Subperitoneal Tissue[13] read at the Carlisle meeting of the Association in 1896 and to the well-known writings of Moynihan on the subject

Clinical Features of the Case.—For the sake of comparison I will show how far this case resembles other instances of solid tumour of the mesentery already recorded. I will confine myself as much as possible to the more reliable reports of fibromyoma and allied tumours, not always clearly defined, pathologically speaking. I have drawn up the appended table of 13 cases of this class of new growth subjected to operation. Beginning with the question of sex, the patient was a woman in 10 out of the 13 cases, including my own (No. 13), but in three instances (Nos. 3, 10, and 11) the patient was a man. This proportion disproves the theory that fibroma of the mesentery is necessarily of uterine or broad-ligament origin, but tends to show that, like fibroma of the abdominal walls, the disease is far more frequent in female than in male subjects.[14] As for age, my patient was 34 The range in the table is from 10 to 56, the oldest being a male. The youngest patient was a girl, aged 10 (No. 5); the tissues of the tumour, which was easily enucleated, were healthy, but in the next youngest, a girl, aged 16 (No. 6), the tumour was sloughy. In Hackspill's case the patient was, I understand, an infant. In my case the time before operation when swelling of the abdomen was first noticed was about six months. It came on insidiously, as usual, and the tumour must have been in existence long before it was discovered. In most of the cases where time was considered worth notice, the swelling had been observed for a year or two. Shepherd's patient (No. 10) found, a year before operation, that his dress-clothes were becoming too small for him,[15] Sheild's (No. 9) was subject to distressing procidentia which turned her attention to her abdomen.[16] Spencer Wells's patient (No. 8) had noticed the swelling for nearly five years, but pain was present,[17] a symptom absent in my case (No. 13), as also in Nos. 1, 2, 3, 5, 6, 7, 9, 10, and 12. It was marked not only in No. 8, but also in Nos. 4 and 11 ; in the two latter resection of the intestine was needed, but it was not necessary in the painful case No. 8, whilst it had to be performed in Nos. 2, 10 and 12, where pain was absent. Thus the presence or absence of pain is no guide before operation to any estimate of possible complications due to close relations of intestine. As for size and weight, the tumour in my case appears to be the heaviest of its kind on record, in association with which fact the total absence of pain is worth recording. Lipoma of the mesentery may attain a far greater size and weight. Péan successfully removed a tumour of this class weighing 55 lb. ; the patient had suffered little pain except from indigestion, though the tumour had caused great emaciation; further reference will be made to this case. The important questions of obstruction and resonance on percussion are best considered as factors in diagnosis.

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* Von Knorre removed a myoma which was two-thirds retroperitoneal, and "reached up to the radix mesenterii." It was enucleated, and the retroperitoneal space drained through the vagina; the patient recovered (*Monats. f. Geb. u. Gyn.*, May, 1904, p. 782). It is not quite clear whether the tumour was uterine, or had developed originally in the broad ligament, which might have been the seat of origin of some of the mesenteric fibroids included in the table which is appended to this communication.

Diagnosis.—I have already stated that the tumour seemed to be a multilocular ovarian cyst. The displacement of the uterus and the feeling of fluctuation due to the large amount of mucoid tissue in the tumour were highly deceptive symptoms.

The same diagnosis was made in Nos. 1 and 2, whilst No. 4 was taken for an ovarian dermoid, No. 7 for sarcoma of the ovary, and Nos. 9 and 12 for solid, apparently non-malignant, tumours of the ovary. Thus in 7 out of 10 cases of mesenteric tumour of the fibroma and myoma class in women, ovarian tumour was diagnosed. This error is very natural, for a doubtful abdominal growth in a woman, clearly separate from the uterus, often proves to be ovarian, and the factor of relative frequency is always an influence in diagnosis ; at least, none of the tumours were taken for uterine fibroids, presumably because the uterus in all was distinct and none were diagnosed as broad-ligament fibroids because the vaginal fornices were not occupied by the tumour, although it sometimes came down into the pelvic brim, out of which it could be pushed. Ovarian cyst or sarcoma was diagnosed in several recorded cases of solid mesenteric tumour of other types, such as sarcoma (Pilliet and Veau, Lockwood, Doléris[18]), or myxomatous lipoma, as in Madelung's case, where the new

Greer. W. J. Fibromatous
Tumours of the Mesentery.
B. M. J. II. 1911 p. 1085 (A
very fine table including
many I overlooked.

growth seemed to be an ovarian cyst even when exposed at the operation. Its true nature was not determined until it had been freely separated from its surroundings. Ricard's tumour of the lesser omentum was mistaken for a uterine fibroid. In the 3 cases of fibroma or fibromyoma of the mesentery where the patient was a man (Nos. 3, 10, and 11), no clear diagnosis was made. In Brookhouse's (No. 3) "the tumour looked and felt like an enormous fibroid in a woman."[19]

Theoretically we should expect to meet with two symptoms of high diagnostic value -intestinal obstruction and resonance on percussion; but experience teaches that both are usually absent. In the whole of the 13 cases in the table there was no clear instance of obstruction frequent in mesenteric cysts (Eve, Baumann), and observed in some cases of solid tumour (Julliard), though the colicky pains noted in one male patient (No. 11) might be classed as evidence of such a complication. The diarrhoea in No. 4, unique in the table, was probably due to interference with the circulation of the mesenteric vessels. It is more frequent after operation when those vessels have been damaged. The question of resonance is of the highest importance in diagnosis. Lockwood lays great stress on the detection of solid mesenteric tumours, by the aid of which a useless and fatal operation may sometimes be avoided. He is referring specially to sarcoma, and I must add that the same may be said of large lipomas; I have dwelt elsewhere on the perils of attempting their removal. Lockwood found that irregular and inconstant areas of dullness and resonance over the front of the tumour are strong indications that it lies more or less in the mesentery. The variation of resonance is, of course, due to distension or emptiness of a coil of intestine in the capsule.

Unfortunately, this conspicuous symptom is not constant—at least, in tumours of the fibroma class. In Nos. 1, 6, 10, and 13 dullness, pure and simple, was specified. No statement about resonance was recorded in Nos 3, 5, 8, 11, and 12; in most of the others dullness seems implied, even in the mere statement that there was a solid tumour occupying the front of the abdomem. No. 10 is a little obscure, but the resonance in the "flanks" was, no doubt, external to the limits of the tumour, and not on its surface laterally. Dullness was presumably present in Nos. 4 and 9, which were diagnosed as ovarian. There remain 2 cases—namely, No. 2, where resonance was noted on portions of the left side of the tumour, and No. 7, where the most prominent part only was dull. Still, Lockwood's symptom was not specified in either of these cases, for it is not stated that the area of resonance varied. It is significant that in both Nos. 2 and 7, where resonance was noted, the two layers of the mesentery were opened up. In many cases, as in my own (No. 13), the upper layer was much more involved than the lower, so that the small intestines were pushed into the left flank.

Thus the diagnosis of fibroma of the mesentery is very difficult, probably impossible in many cases. When Lockwood's sign is absent, we must rely on negative evidence, such as the absence of the more definite characteristics of renal, splenic, omental, uterine, broad ligament, and, above all, ovarian tumours.

Surgical Treatment.—There can be no doubt that a fibroma or fibromyoma of the mesentery should be removed. The mortality is certainly high, and many fatal cases may remain unreported, although it is also very possible that in other unrecorded instances where recovery occurred the true nature of the tumour was overlooked. In the table, No. 12 must be set aside on account of the very short after-history, leaving 8 recoveries and 4 deaths. In one fatal case (No. 6) the tumour was sloughing, a complication not met with in any of the others ; No. 2 was the only fatal case where resection was practised, and in this instance the tumour was not completely removed. No. 3 is said to have died of shock ; in No. 7 suppuration occurred in the capsule, with sloughing of intestine. The 8 recoveries justify operation for this kind of tumour, and more so when we note that extensive resections of intestine were undertaken in Nos. 4, 11, and especially No. 10. Hence the bold operator need never despair. Unfortunately, the pathology of the tumour is not always to be determined at the operation. Sarcomatous elements, as Lockwood has reminded us, render operative interference very deadly and recurrence certain should the patient recover, whilst the mortality after the removal of a large mesenteric lipoma is apparently quite as high, greater certainly than I estimated in my report of a case two years ago. Lipoma, it must be remembered, may contain sarcomatous elements impossible to recognize at an operation. Dr. Lockyer declares that such was the case in the tumour which I removed in 1902. I have already shown that statistics of lipoma of the mesentery have been vitiated by the inclusion of two cases where a lipoma of the great omentum was successfully removed. Again, in some cases of pure lipoma thorough extirpation may prove impossible, lobes of fat running from the main growth between and behind the great vessels and their important primary branches. Monprofit recently exposed a retroperitoneal tumour of great bulk which held cavities containing over 8 pints of serous fluid.[20] So closely was it connected with the tail of the pancreas and the spleen that both were removed. The uterus and appendages were not involved. The patient recovered. The surgeon operating upon large retroperitoneal tumours may come upon abnormally-placed viscera. (Pelvic kidney associated with fibroma of broad ligament, Billroth's case, or with lipoma or liposarcoma of mesentery, author's case.)

These experiences remind us that when the surgeon exposes a retroperitoneal solid growth he must carefully ascertain its relations to the abdominal and pelvic viscera before he breaks down a single adhesion or sets free a single attachment of any other kind. He may have to resect intestine, or, as in Monprofit's case, much more than intestine ; or, like Julliard, he may be forced to operate for obstruction and to leave the removal of the tumour for another occasion. Still, granting that the retroperitoneal growth be a fibroma or fibromyoma of the mesentery, it must be admitted that its extirpation will be relatively easy, safe, and satisfactory as to after-results.

See notes in
reprint of
A.D.'s case

Cases
Bowlby
(Lockwood's
paper) &
A. [illegible]
case of [illegible]
Singleton
Abstract of
Monprofit
Epitome
B M J II '04
Par. 70.

Before discussing the details of an operation for the removal of a fibromyoma of the mesentery it is advisable to consider what experience teaches us about pure shock independent of any operative complication.

Shock.—This symptom was severe in the present case. Mr. A. P. Morley administered gas and ether, which he subsequently changed to chloroform, with the idea of avoiding bronchitis, as the operation took some time to complete. He noted marked shock during the enucleation, which he

Bérard et Cavaillon "Tumeur du mesentère. Ligature latérale de l'aorte". Revue de Gyn. et de Chir. Abd. July-Aug. 1907 p. 679 & Lyon médicale

It was a lipomyxoma 11 kilos, 70 cm. thick" a wide piece of it. The art. was torn level with aorta to which a temporary ligature was applied, it became flaccid & when the forceps applied to the bleeding vessel ~~will~~ could be drawn forward, the permanent ligature applied & the adventitia drawn over it & fixed by a purse-string ligature to support that on the vessel.

Herman Grad "Large Retroperitoneal Tumour probably arising from the Transverse Colon between the Layers of the Transverse Mesocolon" Amer. Journ. Obstet. April 1910 (Vol LXI) p. 668. Apparently a fibrosarcoma arising fr. transverse colon. But see original

Houzel "Kystes dermoïdes du mésentère". Archiv. prov. de Chirurgie Vol XX. p. 193 (April 1911) attributed to haemorrhage; but the patient was anaemic already, and the amount of blood actually lost seemed trifling. The patient's condition improved when the peritoneal cavity was flushed with saline solution, whilst at the same time Mr. Morley poured some ether into the mask as a stimulant with good effect. I still practise flushing in cases where shock and haemorrhage are unavoidable; because a method has been abused and over-rated that is no reason why it should be discarded where experience had shown that it is beneficial. Towards the end of the operation the shock recurred, and a hypodermic injection of 8 minims of liquor strychninae was given, whilst the abdominal cavity was again flushed. The patient revived. Mr. Morley laid stress on the preliminary administration of ether in cases where big tumours are removed, as he finds that it involves less likelihood of cardiac failure from shock than if chloroform alone be used.

The removal of a solid tumour of great weight, though much less bulky than many lipomas and cysts, in itself involved disturbance to the circulation, but fortunately the connective tissue, which alone bound the tumour to the surrounding parts, was uniformly loose and soft, so that traction on adjacent viscera, nerves, and blood vessels was but trifling, else the shock would have been greater.

As in all cases where I undertake the removal of a large abdominal growth, I administered liquor strychninae to the patient for several days before the operation, and for over a week afterwards. This line of treatment has already been advocated by Dr. W. Duncan in the *Lancet* (vol. i, 1900, p. 1114). I find the results most satisfactory. One or two modern authorities appear to object to the drug. I admit that in operations where the patient is strong, and there is more danger from sepsis than from pure shock, strychnine little of is value, if not absolutely deleterious.

In the table, death was ascribed to shock in No. 3, whilst in the remaining three fatal cases (Nos. 2, 6, and 7) it is certain that this complication was not the cause of the fatal result. But the chances of fatal shock are much higher when a lipoma of the mesentery is removed (Terrier, author). This factor renders a correct estimate of the dangers and mortality of resection of intestine impossible, as the procedure in itself may involve shock, whilst that complication in several cases where intestine was removed seemed most probably due to enucleation of the tumour from densely adherent surrounding tissues, with almost unavoidable loss of blood.

Enucleation.—In my own case the tumour was shelled out of its capsule of mesentery with ease. Care was taken to work the swabs and forceps and scissors, as well as the finger, close against the tumour, so as to leave the main vessels in the capsule as little disturbed as possible. All branches from the vessels running into the tumour were secured with pressure forceps before division, and tied afterwards. Posteriorly several vessels could not be treated in this manner; they were inadvertently divided, but easily recognized and secured as they spouted.

It is instructive to compare this case (No. 13) with the remaining 12 in the table. In 3 (Nos. 3, 8, and 13) the tumour was invested by the anterior or superior layer of mesentery alone. In 8 (Nos. 2, 4, 6, 7, 9, 10, 11, and 12) both layers of mesentery were opened up; whilst in 2 (Nos. 1 and 5) the nature of the encapsulation is not clearly specified. There can be little doubt of two facts: first, that as a rule both

Table of Reported Cases of Fibroma and Fibromyoma of the Mesentery Removed by Operation.

No.	Reporter.	Sex and Age	Clinical Symptoms.	Operation.	Weight and Nature of Tumour.	Result of Operation.
1	*Péau	Female, 40	Tumour reaching from epigastrium to pelvic cavity, dull on percussion, fluctuating at certain points. Diagnosis: Ovarian cyst	Old, vascular, parietal adhesions. On puncture no fluid came away. Enucleation, ligature of a pedicle of connective(?) tissue attached to lumbar spine, and of another pedicle inserted on pelvic brim. Both pedicles fixed to lower angle of abdominal wound	Over 7½ lb. Pure fibroma, very soft	Speedy recovery; no recurrence.
2	*Folet	Female, 20	Abdominal swelling about one year; pregnancy, and later ovarian cyst suspected. Tumour size of man's head, resonance over portions of its left side	Trifling parietal adhesions. On puncture no fluid came away. Layers of mesentery almost evenly opened up and strongly adherent to tumour. Damage to intestine, much resected, segment fixed to abdominal wound. Enucleation, but base adherent to aorta, and vena cava not removed	Weight not given. A very firm, uniformly white, fibrous tumour	Death in twenty-four hours, the resection had proved a failure, turbid fluid in pelvis.
3	Brookhouse	Male, 56	Weak health two years, tumour noticed ten months, reached from epigastrium to pubes, and extended into flanks. Very hard, smooth, movable to a certain extent, painless	Anterior layer of mesentery, forming capsule to tumour divided. Enucleation (easy, little haemorrhage). A flap of redundant capsule cut off. Parietal wound closed	13¼ lb. Dense fibrous tissue, small cystic cavities	Death in thirty-two hours, ascribed to shock, chiefly of the ganglionic nervous system. No blood in peritoneal cavity.
4	Müller (Aix-la-Chapelle)	Female, 33	Pains in abdomen several years; frequent diarrhoea. Tumour came down into pelvis. Diagnosis: Ovarian dermoid.	Tumour invested by both layers of mesentery corresponding to jejunum; 11 in. of adherent bowel resected, suspicious mesenteric glands removed; pedicle of connective tissue containing large vessels ligatured and divided; upper end of intestine implanted into lower end, the extremity of which was fixed to lower angle of wound	Weight not given. A large fibroma free from malignant elements	Early sloughing of divided end of lower part of intestine. Nine months later the patient was free from recurrence.

			[illegible] size of two fists; no discomfort: discovered by accident	[illegible] capsule dropped and abdominal wound closed	pure fibroma	
6	*Richelot	Female, 16	Two years' tumour in umbilical region; dull; as big as fetal head at term	Omental adhesions: tumour covered by intestines connected with its capsule: enucleation easy; tumour sloughy: fetid Capsule fixed to parietes and drained	3 lb. Fibroma, sloughing in centre	Death seventh day. Purulent peritonitis around sutures fixing capsule and perforation of ascending colon by yielding of a slough.
7	*Binaud and Bégouin	Female, 50	One year tumour; hard, tuberous, movable; only most prominent part dull on percussion; situated chiefly in right iliac fossa. Sarcoma of ovary diagnosed	Tumour invested by mesentery; lower part of ileum crossed anterior surface of capsule. Incision parallel to vessels on capsule; enucleation; right ureter had to be dissected off lower pole: haemorrhage trifling. Inner surfaces of capsule brought together by sutures; peritoneal cavity closed, no drainage	Weight not given A dense fibro-myoma	Fetid stools after fourth day: sudden death eighteenth day. Superficial sloughs on intestine, abscess in capsule No thrombosis of mesenteric veins, no pulmonary embolism; brain not examined.
8	Spencer Wells	Female, 40	Four years' pain in iliac region and abdominal enlargement, which at last increased rapidly, with apparent diminution at menstrual periods. Solid, central, movable, size of adult head	Solid tumour; "its origin was clearly in the cellular tissue at the root of the mesentery proper, near the lumbar vertebrae." Ascending colon in front and to right. Blood supply entirely from the mesenteric vessels. Enucleation, wound closed. No drainage	Weight not given. A fibroma or fibromyoma erroneously tabulated as "sarcoma" in works of several writers	The patient lived for over eighteen years, and died without any signs of malignant disease (private communication from Mr. R. Favell, of Sheffield, June, 1904).
9	Marmaduke Sheild	Female, 50	Complete procidentia for a year, abdominal swelling noticed four months. Tumour extending from ensiform cartilage down into pelvis, elastic, semi-fluctuating, but no thrill on percussion. Diagnosis: Ovarian tumour	Transverse colon and much small intestine flattened out on capsule of tumour. Strong adhesions of capsule to parietes and to tumour anteriorly; enucleation from tissues behind easy. Large vessels required ligature. Drainage	Over 9 lb. Oedematous (? myxomatous) soft fibro-myoma	Recovery.

N.B.—* Signifies that the case is entered here from Bégouin's tables, *Revue de Chirurgie*, vol. xix, 1899, pp. 414 to 418. Nos 3, 4 and 8, also in same tables, are here modified from original reports. No 8 was incorrectly included (loc. cit., p. 419) as "sarcoma." For statistics of retroperitoneal sarcoma see J. Dutton Steele, *Amer. Journ. Med. Sciences*, June, 1904.

Table of Reported Cases of Fibroma and Fibromyoma of the Mesentery Removed by Operation—(Continued).

No.	Reporter.	Sex and Age.	Clinical Symptoms.	Operation.	Weight and Nature of Tumour.	Result of Operation.
10	Shepherd (Montreal)	Male, 28	No pain, good health, abdominal enlargement one year. Tumour detected three months; reached from ensiform cartilage to pubes, hard, freely movable. Dullness anteriorly, resonance in flanks	Firm parietal adhesions separated. Tumour intimately blended with its capsule of mesentery; 7 ft. 8 in. of ileum resected, end to end anastomosis	13 lb. Fibro-myxoma	Recovery. Troublesome diarrhoea at first, but patient in good health eight months after the operation.
11	Lexer	Male, 41	Colicky pains in abdomen: turned attention to hard tumour, size of a child's head, very movable	Tumour invested completely by mesentery; a pedicle posteriorly including connective tissue and vessels, and a long coil of intestine ran on front surface Pedicle ligatured; about 6½ ft. intestine resected Abdominal wound closed	5 lb. Fibroma with myxomatous portions	Discharged from hospital cured six weeks after operation
12	Murphy	Female, 26	Round, hard tumour in left side pelvic cavity and iliac fossa; could be pushed into abdomen Moved independently of uterus. Diagnosis: Fibroma of ovary	Hard tumour, ovoid, only 3 in. in diameter; invested completely and evenly by the layers of the mesentery; 2 ft. of ileum resected; Murphy's button	No weight given. Fibroma of mesentery	The Murphy's button was passed on the twelfth day; no later history
13	Doran	Female, 4	Painless swelling observed about six months Bulky tumour filling abdomen and reaching pelvic brim and pushing uterus backwards Soft, dull, with thrill on percussion. Diagnosis: Ovarian cyst	Tumour tapped, little or no fluid came away; it was invested by anterior or upper layer of mesentery: small intestines closely applied to its left border. Enucleation easy; large vessels in posterior and inferior part of capsule required ligature Lower part of capsule fixed to lower angle of wound and drained	30 lb., with 2 pints of serum. Fibromyoma undergoing myxomatous degeneration.	Recovered; in good health three months after the operation

The author has been unable to obtain details of 2 cases quoted by Julliard. (14) Hackspill "Ein seltener Fall von Fibromyoma cavernosum mesenterii bei frühen Kindesalter." *Inaug Dissert* Würzburg, 1898. (15) Durnana, "Un caso de fibroma del mesenterio estirpado con reseccion del intestino." *Revista de la Sociedad med. Argentina*, vol. ix. 1901.✗ Sancyosthi's case of multiple fibromyoma disseminated over the subperitoneal tissue from the hypochondrium to the pelvis (*Sei-i-Kwai*, June 12th, 1896, and Anderson, loc. cit.) was not strictly speaking an instance of mesenteric tumour.

✗. Zacharias "Demonstration eines Myxosarkoms zweifelhaften Ursprungs(?)" Zentralbl.
[illegible] 97

Bowers "Tumours of the mesentery" — Annals of Surgery, Dec 1906, p. 892. 24 cases, including his own, previously unreported. 18 were in females, 6 in males. His own patient was ♀ 15. The tumour (like C. Keep's pancreatic cyst) slipped under left ribs when pt was under anaesthesia. It lay in lesser omental cavity attached by a pedicle to the meso-colon; & was strongly adherent to posterior wall of stomach.

cf. Abstract, Z.L.O.G., Vol XI, p. 188

layers are opened up; and, secondly, that the less usual form of encapsulation, where the anterior layer is alone involved, is the most satisfactory for operation. For enucleation proved easy in six operations on the list, Nos. 3, 5, 6, 8, 12, and 13; and in half of them—Nos. 3, 8, and 13—only one layer of mesentery was involved. As for the remainder, in No. 6 the ease of enucleation was at least in part due to the tumour being soft and sloughy, whilst in No. 5 there were no adhesions, and the subject was very young; in neither was resection of intestine needed. In the remaining case, however (No. 12) much intestine had to be removed, although the enucleation was not attended with difficulty. But the table shows that the removal of a tumour encapsuled in one layer alone, though the enucleation may prove easy and involve little haemorrhage, and though no resection may be needed, may be followed by fatal results (No. 3).

Parietal adhesions complicated 4 (Nos. 1, 2, 9, and 10); in only 1 (No. 6) is it recorded that the omentum adhered. Close adhesions of the capsule which rendered enucleation difficult was noted in 7 cases (Nos. 1, 2, 4, 7, 9, 10, and 11). In Nos. 1, 4, and 11, the adhesion was, strictly speaking, a more or less distinct pedicle of dense connective tissue, containing large vessels, and holding the tumour to the lumbar spine. In Péan's case (No. 1) there was a second pedicle. Whether pathologically these pedicles be firm but localized adhesions, or representatives of some non-inflammatory condition, they must be carefully handled, as in other forms of mesenteric tumour (especially lipoma) they may be intimately blended with the pancreas or great vessels. No. 2 in this series represents a kindred complication; the base of the cyst was closely adherent to the aorta and vena cava, so that the operation was incomplete. In the remaining four cases the adhesion of the capsule was general, without any kind of pedicle. A detail in No. 7 must be remembered. A white cord was found firmly adherent to the back and lower pole of the tumour. This cord proved to be the ureter, and required careful dissection off the tumour. The position and relations of this duct are of extreme importance to the operator engaged in enucleation. In my case, I did not feel easy until I saw the ureter when searching along the brim of the pelvis as the tumour was being drawn forward. In No. 9 the operative difficulties due to close adhesion of the capsule to the tumour, complicated by parietal adhesions to the capsule, seemed greater than in any other case, and all the adhesions were vascular. Where there is the least doubt about the parietal peritoneum, the urachus should be carefully sought for and traced, as uncertainty about the relations of the serous folds may lead to disaster. In No. 10, as in No. 9, parietal complicated capsular adhesions. In No. 4, where a pedicle existed, the intestine itself strongly adhered to the tumour.

Zacharias
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Resection of Intestine.—In the present case there was clearly no necessity for resection of any portion of the intestine, for I was able to detach the capsule without prejudice to the nutrition of the jejunum or ileum. Though, however, enucleation proved successful without resection in another (No. 8) of the three cases in the table where the anterior layer of mesentery alone was involved, in the third (No. 3) the patient died. When both layers of the mesentery are opened up resection may be unavoidable, as has already been explained. In the eight cases in the table where this condition was definitely registered in the original reports no resection was practised in three (Nos. 6, 7, and 9), with two deaths, but in No. 6 the tumour was sloughy. The other fatal case (No. 7) is of high interest, as fetid diarrhoea occurred, a familiar complication when nutrient vessels in the mesentery and other peritoneal folds are extensively damaged. It was observed in Terrillon's case, where a myxolipoma weighing 57 lb. was removed, and in Pilliet and Veau's, where the tumour was a sarcoma. Both ended fatally, and in both there was clearly damage to intestine. Pilliet and Veau state that the operator separated a great part of the transverse colon from its mesentery. I recently observed fetid diarrhoea after hysterectomy, which, fortunately, was followed by recovery. I was obliged to detach a bulky tumour from firm adhesion to the greater part of the under layer of the transverse mesocolon, which was, consequently, lacerated, but I carefully closed the rent by suture. Nevertheless, very severe fetid diarrhoea occurred. The nutrition of the colon was evidently compromised for a time, and was probably restored by the great omentum, so loyal in its adhesion to parts damaged in abdominal operations.

Experts in resection may urge that the above experiences of myself and others teach that intestine is best removed when its nutrition in endangered by evident damage to mesentery during the enucleation of a tumour. We must admit that there is force in their argument. In the eight cases where both layers of mesentery were involved, resection was practised in five (Nos. 2, 4, 10, 11, and 12). No. 2, a fatal case, may be rejected as an incomplete operation. The remaining four all recovered, and the resections were, to say the least, very thorough. The details will be found in the tables and in the original reports.[21] In Case 12 the operator was a distinguished living authority on intestinal surgery. In No. 10 the length of bowel that was removed was very great; the subsequent diarrhoea was a noteworthy symptom. It has been already observed that a relatively small tumour may involve much mesentery. Thus in Murphy's case (No. 12) the fibroid was but 3 in. in diameter, and, turning to the surgery of other forms of solid tumour of the mesentery, we find that Roux (in the third case published in his original report), when removing a small lipoma from a man aged 41, was obliged to take away over 4 ft. of ileum and perform complicated plastic procedures, the plan of which had to be changed in the middle of the operation. The lipoma was of the size of an orange, and so well encapsuled in the mesentery that it hung down and swung upon a pedicle composed of the two folds, a mesolipoma as we might call it; the attachment to the tumour had given rise to attacks of obstruction for thirty-four years, and the compromised intestine was found to be much diseased. The patient recovered. This case must not be overlooked, as a fibromyoma also has been known to possess a kind of mesentery (No. 11), rendering it freely movable. The mobility might make the surgeon fondly anticipate an easy operation. Sometimes only a small segment of bowel requires resection when a large tumour is removed. Thus Madelung, in his successful operation on a myxolipoma which weighed over 38 lb., did not resect more than 3 in. of ileum.

Julliard's case of cavernous angioma was so complicated by acute obstruction that it can hardly be compared with any in the table. Indeed, he had to do three operations within

Cyst in Sigmoid Meso-colon

Lenthal Cheatle. "Operation for the Removal of an Abdominal Cyst." *Med. Press*, March 1. 1905, p 221. ♀ 45, 1½ pt fluid, no hair. Fluid was of a brown colour, inner wall epithelium with here & there papillomata. Enucleation, external layer of meso colon sewn up again – Recovery. It formed a thick cystic swelling in hypogastric & left iliac region, but did not involve pelvis.

Hollemann, Ein Ovarialcyste
Zentralbl. f. Gynäk 1908. p. 297
♀ 19. Lying to left of uterus, entirely in pelvis & was taken for a small cyst of left ovary & removed thro' vagina. Then it was found to be omental. Recovery.

Bérard & **Cavaillon** Zentralbl. f. Gyn. Nr. 24, 1908, p. 816. ♀ 61 retromesenteric tumour. Aorta damaged & repaired, Rec^y
(see offp. p. 2)

five days, removing the tumour with nearly 4 ft. of jejuno-ileum at the second sitting. The small intestine had to be opened within forty-eight hours, with temporary benefit, but the patient died of pneumonia six days later.

Thus resection of intestine is, in a large proportion of cases, a necessary step in operations on fibroma and fibromyoma of the mesentery, and an indefinite variety of complications may be encountered where this procedure is called for. Yet we see that fortune has favoured the bold and saved their patients.

Management of the Capsule.—In the present case the cut edge of the capsule was trimmed so as to remove all tissue bruised during the extraction of the tumour. A certain amount of abrasion is inevitable during enucleation, as a very free incision, safe enough in the case of the wound in the abdominal parietes, is dangerous in a capsule of mesentery where as few vessels as possible should be divided; as the incision is on that account made short it is liable to be bruised. I refrained from excising a whole flap of the mesenteric capsule, a practice which may have played a share in the fatal result in Case 3. There was no difficulty in fixing the capsule to the lower end of the abdominal wound without dragging on or kinking the intestine, and as the capsule was very ample it was not likely to contract to such an extent as to endanger the free play and nutrition of the portion of the alimentary canal with which it was associated. Every bleeding-point detected in the raw inner surface of the capsule was ligatured. General oozing could only be checked by pressure. I used gauze packing, which acted satisfactorily. Apposition of the raw inner surfaces of a mesenteric capsule by suture was practised by Péan after the removal of a lipoma weighing 55 lb., above mentioned. As Péan's patient was at the time of the operation in the second month of pregnancy, and not only recovered but was delivered at term, the practice proved beneficial or at least harmless in his case. But after some experience in the treatment of pelvic peritoneal capsules I find that the application of sutures to their raw surfaces involves danger of wounding veins and other important structures; when the capsule is mesenteric this danger must be yet greater. To let the capsule drop is questionable surgery, for if the incision made during the operation be left open, then, as Bégouin warns us, incarceration of intestine might occur, whilst if the incision be closed an enormous retroperitoneal haematoma might very possibly develop.

My own views as to the desirability of packing and drainage of large capsules have already been published and discussed.[22] Simple drainage with a tube was sufficient in No. 9; in my own case gauze seemed advisable; I removed it at the end of twenty-four hours as it had served its purpose, and, as usual, was beginning to interfere with the downward passage of flatus.[23] In days when this practice was employed too frequently, I often noted obstruction and high pulse when the packing was left in the cavity for forty-eight hours or more. The former symptom disappeared when the gauze was withdrawn; the high pulses meant iodoform poisoning. But iodoform gauze is discarded, and much of the undeserved obloquy now cast on packing and drainage should be laid on its former abuse, and must not lead us to discard it altogether. Both answered well in this case, and had oozing recurred some more gauze would have been applied.

As for the management of the bowels, I am entirely in accord with the modern school, for I have seen hundreds of instances of the evils following the bad old practice of keeping the bowels closed for many days. It always involved needless discomfort, usually caused torture from scybala, and not rarely led to death from sepsis or obstruction. In this case the administration of an enema on the second day, judiciously repeated and later on replaced by aperients, ensured the patient's safety and restored her to comfort.

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